

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Bombardier Aerospace

for an exemption from § 25.785(b) of
Title 14, Code of Federal Aviation Regulations

Regulatory Docket No. FAA-2002-13385

GRANT OF EXEMPTION

By letter dated May 28, 2003, Rod Iverson, Bombardier Aerospace Completion Center Engineering, P.O. Box 11186, Tucson, Arizona 85734, petitioned for an amendment to Exemption 7120B, previously issued on December 23, 2003. That exemption granted Bombardier certain relief from the general occupant protection requirements of Title 14 Code of Federal Regulations (14 CFR) 25.785(b) for persons occupying multiple-place side-facing seats during takeoff and landing on Bombardier Model BD700-1A10 airplanes manufactured before January 1, 2004. The petitioner now requests an amendment to Exemption No. 7120B to remove the limitation that restricts its applicability to airplanes manufactured prior to January 1, 2004.

The petitioner requests relief from the following regulation:

Section 25.785(b) requires general occupant protection for occupants of multiple-place side-facing seats that are occupied during takeoff and landing.

The petitioner's supportive information is as follows:

"Background:

"FAA Exemption No. 7120B was issued for side-facing divans installed aboard the Bombardier Aerospace Model BD700-1A10 Global Express aircraft on December 23, 2002. The exemption granted certain relief from 14 CFR 25.785(b) for occupants of

multiple place side-facing seats during takeoff and landing. Bombardier demonstrated compliance to all elements of the exemption and subsequently the FAA approved STCs on numerous BD700-1A10 aircraft encompassing the side facing divans. The side-facing divan installations are popular with our customers and a majority of the Global Express aircraft in the completion cycle and those being sold to customers will go into service with one or more side-facing divan assemblies.

“The issue:

“The 7120B Exemption granted to Bombardier for 16G side-facing divans contains a limitation stating that it is applicable to BD700-1A10 aircraft manufactured prior to January 1, 2004. The end date of the limitation is rapidly approaching.

“Bombardier’s 7120B amendment request:

“Bombardier requests that the FAA approve an amendment to 7120B that deletes all reference to an exemption limitation date and specifically January 1, 2004. All other aspects of FAA Exemption number 7120B shall remain in affect for BD700-1A10 aircraft side facing divans.”

Bombardier Aerospace Group is a major international corporation, which provides business aircraft to an international market. They manufacture principally in Canada and in the U.S.A. and employ a large staff in both countries. The Bombardier aircraft are equipped with avionics and other specialized systems and equipment manufactured in North America. With the growing numbers of Transport Category corporate aircraft predicted and the stabilizing effect their manufacture and support has on the job market, it is definitely in the public interest of both countries.

“Due to the fact that this exemption has been in effect since February 2000, we respectfully request that FAA consider waiving the *Federal Register* comment period to expedite the approval of the exemption amendment.”

The FAA’s finding concerning notice and public comment is as follows:

A summary of the petition was published in the Federal Register on July 15, 2003 (68 FR 41856). No comments were received.

The FAA’s analysis/summary is as follows:

Exemption No. 7120B was granted to Bombardier Aerospace with a limitation that restricted its applicability to airplanes manufactured before January 1, 2004. The petitioner has requested that this limitation be removed.

Side-facing seats are considered a novel design for transport category airplanes that include Amendment 25-64 in their certification bases, and were not considered when those airworthiness standards were promulgated. Hence, the existing regulations do not

provide adequate or appropriate safety standards for occupants of multiple-place side-facing seats. The FAA has been conducting research to develop an acceptable method of compliance with § 25.785(b) for multiple-place side-facing seat installations. Without an acceptable method of compliance available, the FAA finds that it is in the public interest to grant an exemption to the petitioner for Bombardier Model BD700-1A10 airplanes. Note that this public interest argument does not justify granting exemptions once an acceptable method of compliance with § 25.785(b) is developed. As a result, it is the intent of the FAA to not grant similar exemptions once an acceptable method of compliance is developed.

In consideration of the foregoing, I find that an amendment to Exemption No. 7120B is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, Bombardier Aerospace is hereby granted an amendment to Exemption No. 7120B to remove the limitation that restricts its applicability to airplanes manufactured before January 1, 2004. This exemption is applicable to Bombardier Aerospace BD700-1A10 airplanes. All other limitations of Exemption No. 7120B apply to this exemption. These limitations are provided below.

1. Existing Criteria: All injury protection criteria of §§ 25.562(c)(1) through (c)(6) apply to the occupants of side-facing seating. The Head Injury Criterion (HIC) assessments are only required for head contact with the seat and/or adjacent structures.
2. Body-to-Body Contact: Contact between the head, pelvis, or shoulder area of one Anthropomorphic Test Dummy (ATD) with the adjacent seated ATDs is not allowed during the tests conducted in accordance with §§ 25.562(b)(1) and (b)(2). Incidental contact of the legs, feet, arms, and hands that will not result in incapacitation of the occupants is acceptable. Any contact between adjacent ATDs is acceptable during rebound.
3. Body-to-Wall/Furnishing Contact: If the seat is installed aft of a structure, such as an interior wall or furnishing, that would contact the pelvis, upper arm, chest, or head of an occupant seated next to the structure, then a conservative representation of the structure and its stiffness must be included in the tests. In most cases, the representation of the structure would be more rigid and have less deflection under load than the actual installation on the airplanes.
4. Thoracic Trauma: Thoracic Trauma Index (TTI) injury criteria must be less than 85, as defined in 49 CFR part 572, subpart F. Thoracic trauma index data must be processed as defined in Federal Motor Vehicle Safety Standard (FMVSS), part 571.214, section S6.13.5.
5. Pelvis: Pelvic lateral acceleration must not exceed 130g. Pelvic acceleration data must be processed as defined in FMVSS, part 571.214, section S6.13.5.

6. Shoulder Strap Loads: Where upper torso straps (shoulder straps) are used for sofa occupants, the tension loads in individual straps must not exceed 1,750 pounds. If dual straps are used for restraining the upper torso, the total strap tension loads must not exceed 2,000 pounds.
7. Seat Positions: All seat positions need to be occupied by ATDs for the longitudinal tests.
8. Occupant Retention: All side-facing seats require end closures or other means to prevent the occupant from translating off of the seat.
9. Longitudinal Tests: For the longitudinal tests conducted in accordance with the conditions specified in § 25.562(b)(2), a minimum number of tests will be required as follows:
 - a. One test will be required with ATDs in all positions, with undeformed floor, 10 degrees yaw, and with all lateral supports (armrests/walls). For configurations with a wall or bulkhead immediately forward of the forward seat position on the sofa, a SID (or other suitable) ATD must be used in the forward seat position and a Hybrid II ATD(s) or equivalent must be used for all other seat locations. For configurations without a wall or bulkhead immediately forward of the forward seat, Hybrid II ATD's or equivalent must be used in all seat locations.
 - b. One test will be required with Hybrid II ATDs, or equivalent, in all positions, with deformed floor, 10 degrees yaw, and with all lateral supports (armrests/walls). This could be considered the structural test, as well.
10. Vertical Test: For the vertical test, conducted in accordance with the conditions specified in § 25.562(b)(1), Hybrid II ATDs or equivalent must be used in all seat positions.

Issued in Renton Washington, on September 2, 2003.

/s/ Kalene C. Yanamura
Kalene C. Yanamura
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service